WHAT IS CLAIMED IS:

1. A method for encoding data channels in a CDMA system having data channel interference cancellation, comprising the steps of:

identifying a non-orthogonal pilot signal using a channel code;

mixing a data signal having an in-phase portion and a quadrature portion with a specific user channel code;

producing resultant signals using an output signal which is generated during mixing of the data signal;

modulating the resultant signals using a PN code;

baseband discriminating the in-phase and the quadrature phase portions of the data signal to produce second resultant signals;

modulating the discriminated in-phase portion and quadrature phase portion of the data signal;

forming a composite output signal; and

transmitting the composite output signal to a base station.

2. The method of claim 1, wherein said identifying step comprises the step of:

modulating the non-orthogonal signal using the channel code.

3. The method of claim 1, wherein said mixing step comprises the step of:

modulating the data signal using the specific user channel code.

4. The method of claim 1, wherein said producing step comprises the step of:

summing output signals at a node in the CDMA system.

5. The method of claim 1, wherein said baseband discriminating step comprises the step of:

spreading the in-phase portion and the quadrature phase portion of the data signal.

6. The method of claim 5, wherein said spreading step comprises the step of:

modulating the in-phase portion and the quadrature phase portion of the data signal using channel separation signals.

7. The method of claim 6, wherein said separation signals are orthogonal functions.

8. The method of claim 1, wherein said modulating the discriminated in-phase portion and quadrature phase portion of the data signal comprises the step of:

modulating the discriminated in-phase portion and the discriminated quadrature phase portion of the data signal using respective cosine and sine functions.

9. The method of claim 1, wherein said forming step comprises the step of:

summing the second resultant signals.

10. An apparatus for encoding data channels in a CDMA system having data channel interference cancellation, comprising:

means for identifying a non-orthogonal pilot signal using a channel code;

means for mixing a data signal having an in-phase portion and a quadrature portion with a specific user channel code;

means for producing resultant signals using an output signal which is generated during mixing of the data signal;

means for modulating the resultant signals using a PN code;

means for baseband discriminating the in-phase portion and the quadrature phase portion of the data signal to produce a resultant signal;

means for modulating the discriminated in-phase portion and quadrature phase portion of the data signal; and

means for forming a composite output signal.

11. A method for decoding data channels in a CDMA system having data channel interference cancellation, comprising the steps of:

receiving a composite signal at a base station;

decoding the composite signal to generate first resultant signals;

demodulating the first resultant signals using a PN code to generate second resultant signals;

demodulating the second resultant signal using channel separation functions to generate demodulated resultant signals;

mixing the demodulated resultant signal with channel code data;

filtering mixed demodulated resultant signals to generate demodulated data signals and a demodulated non-orthogonal pilot signal;

filtering the non-orthogonal pilot signal to remove interference;

generating pilot signal interference terms;

subtracting the pilot signal interference terms from the data signal; and

performing a dot product calculation using the filtered non-orthogonal pilot signal and in-phase sub-band portions and quadrature sub-band portions of the data signals to generate a decoded composite output signal.

12. The method of claim 11, wherein said decoding step comprises the step of:

demodulating the composite signal using respective cosine and sine functions.

13. The method of claim 11, wherein said demodulating the second resultant signal step comprises the steps of:

despreading the second resultant signal with respect to the in-phase sub-band portions and quadrature sub-band portions of the data signal using a first channel separation signal and a second channel separation signal, respectively; and

despreading the second resultant signal with respect to the in-phase sub-band portions and the quadrature sub-band portions of the data signal using a third channel separation signal.

14. The method of claim 13, wherein the second channel separation signal is a complex conjugate of the first channel separation signal.

15. The method of claim 14, wherein the first channel separation signal and the seond channel separation signal are orthogonal functions.

16. The method of claim 11, wherein said mixing step comprises the steps of:

demodulating non-orthogonal pilot signal components of the demodulated resultant signals using the channel code data; and

demodulating in-phase sub-band portions and quadrature sub-band portions of the demodulated data signal using a specific user channel code.

17. The method of claim 11, wherein said filtering step comprises the step of:

performing an integration and dump.

18. The method of claim 17, wherein said integration and dump comprises the steps of:

comparing code lengths of the demodulated data signals to each other;

multiplying matching code lengths of the demodulated data signals; and

integrating multiplied and matched code lengths of the demodulated data signals.

19. The method of claim 11, wherein said step of generating pilot signal interference terms comprises the steps of:

modulating the demodulated non-orthogonal pilot signal, using the channel code data to generate resultant output signals; and

modulating the resultant output signal, using a specific channel code of a user to generate a first pilot signal interference term and a forth pilot signal interference term.

20. The method of claim 19, further comprising the steps of:

subsequent to modulating the resultant output signals, using a specific channel code of a user, modulating the resultant output signals using a first channel separation signal and a second channel separation signal to generate a second pilot signal interference term and a third pilot signal interference term.

21. The method claim 19, wherein the first channel separation signal and the second channel separation signal are orthogonal functions.

22. The method of claim 11, wherein said step of performing a dot product calculation comprises the steps of:

modulating cosine portions of the in-phase sub-band portions and cosine portions of the quadrature sub-band portions of the data signal, using a cosine portion of the demodulated non-orthogonal pilot signa to generate resultant cosine in-phase sub-band portions and resultant cosine quadrature sub-band portions;

modulating sine portions of the in-phase sub-band portions and sine portions of the quadrature sub-band portions of the data signal using a sine portion of the demodulated non-orthogonal pilot signal to generate resultant sine in-phase sub-band portions and resultant sine quadrature sub-band portions;

summing the resultant cosine in-phase sub-band portions and the resultant sine in-phase sub-band portions to generate a first composite signal portion;

summing the resultant cosine quadrature sub-band portions and the result sine portions of the quadrature sub-band portions to generate a second composite signal portion; and

outputting the first composite signal portion and the second composite signal portion as the decoded composite output signal.

23. An apparatus for decoding data channels in a CDMA system having data channel interference cancellation, comprising the steps of:

means for receiving a composite signal at a base station;

means for decoding the composite signal to generate first resultant signals;

means for demodulating the first resultant signals using a PN code to generate second resultant signals;

means for demodulating the second resultant signal using channel separation functions to generate demodulated resultant signals;

means for mixing the demodulated resultant signal with channel code data;

means for filtering mixed demodulated resultant signals to generate demodulated data signals and a demodulated non-orthogonal pilot signal;

means for filtering the non-orthogonal pilot signal to remove interference;

means for generating pilot signal interference terms;

means for subtracting the pilot signal interference terms from the data signal; and

means for performing a dot product calculation using the filtered non-orthogonal pilot signal and in-phase sub-band portions and quadrature sub-band portions of the data signals to generate a decoded composite output signal.

24. A method for encoding/decoding data channels in a CDMA system having data channel interference cancellation, comprising the steps of:

modulating a non-orthogonal pilot signal using a channel code;

modulating a data signal using a specific user channel code;

summing the modulated data signal and the modulated pilot signal to obtain resultant signals;

modulating the resultant signals using a PN code;

spreading the modulated resultant signals using channel separation signals;

modulating spread modulated resultant signals using respective cosine and sine functions;

summing the spread modulated signals to form a composite output signal;

transmitting the composite output signal to a base station;

receiving the transmitted composite output signal at a transceiver;

demodulating received composite signal using the respective cosine and sine functions to generate a demodulated composite signal;

demodulating the demodulated composite output signal using a PN code;

demodulating the demodulated composite output signal using channel separation functions to obtain demodulated resultant signals;

demodulating the demodulated resultant signals using the respective cosine and sine functions;

filtering the demodulated resultant signals to generate a demodulated data signal and a demodulated non-orthogonal pilot signal;

filtering the non-orthogonal pilot signal to remove interference;

generating first, second, third and forth pilot signal interference terms;

subtracting the first, second, third and forth pilot signal interference terms from the data signal; and

performing a dot product calculation to generate an in-phase sub-band data signal and a quadrature sub-band data signal.